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SOVIET PEAT INDUSTRY INCREASES MECHANIZATION

NEW PEAT MACHINES DEVELOPED DURING 1946-50 -- 'Torfyannaya Promyshlennost', No 1, Jan 51

The Soviet peat industry showed considerable progress during the Fourth Five-Year Plan. Enterprises destroyed during the war were restored and many new ones built. The plan for total peat extraction was completed 101.7 percent by the Ministry of Electric Power Stations and the plan for production of finished peat 100.0 percent.

Mechanization of the peat-extraction processes (hydro, elevator, and milled peat) increased from 92 percent in 1940 to 95.5 percent in 1948 and 98.3 percent in 1950. The use of the elevator method for extracting peat, which is the most labor-consuming process, decreased from 7.8 percent of total extraction in 1940 to 4.2 percent in 1946 and 1.7 percent in 1950. The Boksitogorsk Artificial Dehydration Plant was put into partial operation.

The following chart shows the relative importance of the various peat-extracting methods in the Ministry of Electric Power Stations for 1946 and 1950:

Method	1946 Percent of Total	1950 Percent of Total
Hydropeat	58.2	56.8
Milled peat	29.6	32.78
Excavator and dredge-elevator peat	7.7	8.7
Hydroelevator peat	0.3	--
Elevator peat	4.2	1.7
Artificial dehydration	--	0.02
Total	100	100

Despite unfavorable weather conditions, the plan for peat extraction was completed 95.8 percent in 1950 (for lump peat 111 percent; milled peat 75.2 percent). Meteorological conditions during July, August, and September were the worst in 19 years, even considerably worse than in 1935 and 1945 when

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conditions were very unfavorable for the peat industry. However, all but 12.7 percent of the extracted peat was dried in 1950 as against 24 percent in 1945 and 29.4 percent in 1935.

In the 1946-50 period, there were many new machines developed by VNIITP, and individual peat trusts and enterprises, and manufactured by plants of Glavtorfmash. Included are the TE-2 and TEMP excavators, the UMPP-4 and UKB gathering machines, OF-3 piling machines, drum-milling machines, TUM conveyors, DDM-5 and DVM-5 machines, electric spreader machines, high pressure pumps, track laying machines, etc. VNIITP has also developed high-pressure pulp pumps which have a production rate of nearly 1,300 cubic meters per hour. These pumps are suspended from cranes and powered by vertical electric motors of 90 and 100 kilowatts. Plants of the Ministry of Electric Power Stations are now producing other pumps with a 2,500 cubic meter per hour capacity.

Self-propelled TUM conveyors have been used in the peat industry for gathering lump peat since 1946. However, this operation is only semimechanized since the conveyor is manually loaded. The UKB machine, which was developed in 1947, to work in conjunction with the TUM, eliminates this manual work. The Glavtorfmash put these machines in series production in 1950, thus making it possible to mechanize gathering of lump peat, the most labor-consuming process in peat mining.

The TEMP multiple-bucket excavator which was introduced by VNIITP in 1948, produced 18,000 to 30,000 tons of peat per season depending on the quality of the peat deposit. In 1950, VNIITP and Glavtorf jointly developed larger spreader machines which will be used by the peat industry in 1951. In 1946, only 22.7 percent of elevator-extracted peat was handled by electric spreader machines, while in 1950 this figure reached 65.8 percent.

Peat was 61 percent mechanically loaded in 1946, and 97 percent in 1950. It is loaded manually only on those enterprises which do not have electric power. Mechanization of reloading work increased from 78.5 percent in 1946 to 94.3 percent in 1950.

Most excavation work is accomplished by the TE-2 excavator made by the Ivtorfmash Plant. In 1948, 18.9 percent of the excavation work was mechanized, in 1949, 52 percent, and in 1950, 86 percent. The DDM machine is used to drain hydropeat fields and the number of these fields increased from 16 percent and in 1946 to 87 percent in 1950.

MILLED PEAT MACHINES IN OPERATION -- Mekhanizats'ye Trudoyemkikh i Tyazhelykh Rabot, No 11, Nov 50

The Ozeretskiy Peat Enterprise extracts peat by the milled peat method and has an annual extraction of about 400,000 tons. It has done much work in mechanizing its production processes and at present, most operations are done mechanically.

The milled peat fields are worked by machine groups which mill, turn, pile, and finally gather the peat into large storage heaps where it continues to dry and is eventually loaded and taken from the field.

The actual milling process is accomplished by the FD-4 drum-milling machine which was developed by VNIITP. In 1947-48, this machine worked unsatisfactorily, but after several structural defects were eliminated it was found very efficient. By 1949, the machine averaged 0.9 hectares per hour, and machines which started the season worked 866-1,309 hectares during the entire period. In 1950, 31 drums, including nine blade-type and 22 peg-type drums were used.

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During the 1950 season the milling machines slowed up operations somewhat on the Ozeretskiy Peat Enterprise. The gathering process which recently consumed the most time has been completely mechanized, but the gathering machines were sometimes idle, waiting to get milled peat to process. Workers competition was held amongst milling operators to offset this deficiency, but drum-milling machine production still lagged.

After the milling process had been completed, VMF-2 turning machines were used to turn the peat over, thus giving it a better chance to dry. A new machine, the VMF-3, was introduced at the Ozeretskiy Peat Enterprise in an effort to increase the productivity of the V-2 tractor which pulls the turning machine. This machine was 14 meters wide, compared with 10.6 meters for the VMF-2 its prototype. The increased productivity of the VMF-3 machine was found desirable, but certain structural defects of the machine must still be eliminated. There is too much space between the supporting wheels causing the machine to sag in these sections. Additional supporting wheels would correct this defect.

The VUF-2 piling machine follows the turning machine. Its job is to further pulverize the peat and then to collect it in secondary piles of heaps. The VUF-2, though also including some structural defects, makes it possible to mechanize most of this kind of work.

The gathering process is accomplished by the UMFF-4 gathering machine which was introduced in 1944. In 1950 the Ozeretskiy Peat Enterprise planned to gather 265,000 tons of peat (66.2 percent of its total production) with 36 of these machines. The more experienced operators completed their seasonal plan 130-159 percent.

Actual methods of operation vary at the different enterprises, depending on the type deposit, weather conditions, kind of machines available, etc. On the Ozeretskiy Peat Enterprise, a peat field of designated size was worked by 2 drum-milling machines, 4 VMF-2 turning machines, 2 groups of VUF-2 piling machines, and 4 wheel-type tractors XTZ and Y-2. This was one turning machine and one piling machine more than required by norms set up by the Ministry of Electric Power Stations. This was done in order that all the wheel-type tractors could be used for turning during the daylight hours when the peat dries rapidly, and for piling after 1600 hours.

The two drum-milling machines are not capable of working the area made available by the gathering machines during the peak of the season. During June and July, gathering machines can operate 18-20 hours daily during good weather. With a planned productivity of 0.61 hectares per hour, four machines can work 0.61 x 20 x 4 or 48.8 hectares daily, while two drum-milling machines can mill only 1.02 x 20 x 2 or 48 hectares per day, or .8 hectares less. VNIITP, therefore, must either increase the production of drum-milling machines or use six milling drums per eight gathering machines.

Loading work was completely mechanized on the Ozeretskiy Peat Enterprise in 1946 and, in 1950, loading machines handled 22.6 tons per hour. A total of 63 persons were occupied in loading operations in that year.

Because of increased mechanization, production per worker on the Ozeretskiy Peat Enterprise increased from 107.7 tons in 1945 to 317 tons in 1948 and 381.3 tons in 1950. At the same time there was a personnel decrease from 2,123 workers in 1945 to 1,398 workers in 1950 (34 percent). In 1950, the Ozeretskiy pledged to extract mechanically 320,000 tons of milled peat, which is 80 percent of its total program.

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